

What is claimed is:

1. An audio signal processing method comprising the steps of:

deleting an audio signal in an anomalous segment,
5 deducing a correct audio signal by referring to waveform of the audio signal before and after said deleted segment;

generating a repair signal for repairing the signal of said deleted segment based on said deduced
10 result;

inserting said repair signal into said deleted segment, and

connecting the same with the audio signal before and after the deleted segment.

15 2. An audio signal processing method as set forth in claim 1, further comprising a step of detecting an anomalous state of the audio signal and performing the above processing when detecting said anomalous state.

20 3. An audio signal processing method as set forth in claim 1, further comprising the steps of

evaluating the similarity of signal waveform before and after said deleted segment in the step of deducing said audio signal,

generating the repair signal by the waveform with
25 the greatest similarity in the step of generating said

repair signal, and

smoothly connecting said inserted repair signal and the audio signal before and after said deleted segment in the step of connecting said audio signal.

5 4. An audio signal processing method as set forth in claim 3, further comprising the steps of:

measuring and successively adding a time discrepancy between a segment with the waveform connected by using said repair signal and a segment with said
10 anomalous signal deleted therefrom, and

performing the processing of said deducing step, repair signal generation step, and signal connection step again when a sum of the time discrepancy exceeds a constant time discrepancy so as to adjust the time discrepancy.

15 5. An audio signal processing method as set forth in claim 3, further comprising a step of calculating a correlation function for the audio signal before and after said deleted segment in the step of deducing said audio signal and evaluating said similarity by referring to the
20 calculated correlation function.

6. An audio signal processing method as set forth in claim 3, further comprising a step of calculating a correlation function for the audio signal before and after said deleted segment in the step of generating said repair
25 signal and cross fading the audio signal.

7. An audio signal processing method as set forth in claim 3, further comprising a step of cross fading the audio signal before and after said deleted segment to smoothly connect it in the step of connecting said audio signal.

8. An audio signal processing method as set forth in claim 2, further comprising a step of detecting said anomalous state by detecting skip scanning of a reading means when reading an audio signal from a recording medium.

9. An audio signal processing method as set forth in claim 2, further comprising a step of detecting said anomalous state by statistically processing said audio signal and detecting a sudden fluctuation in said audio signal.

10. An audio signal processing method comprising the steps of:

deleting an audio signal of a noise segment of noise and discontinuity due to shot noise superposed on the audio signal or a signal skip;

evaluating a similarity of signal waveform before and after the noise segment; and

smoothly connecting the waveform to give a maximum similarity.

11. An audio signal processing apparatus comprising:

a signal deleting means for deleting an audio

signal of an anomalous segment;

a deducing means for deducing a correct audio signal by referring to the waveform of the audio signal before and after said deleted segment;

5 a repair signal generating means for generating a repair signal for repairing the signal of said deleted segment based on said deduced result; and

a signal connecting means for inserting said repair signal into said deleted segment and connecting the
10 same with the audio signal before and after the deleted segment.

12. An audio signal processing apparatus as set forth in claim 11, further comprising an anomaly detecting means for detecting an anomalous state of the audio signal and
15 performing said processing when detecting said anomalous state.

13. An audio signal processing apparatus as set forth in claim 11, wherein

said deducing means evaluates the similarity of
20 the signal waveform before and after said deleted segment in the step of deducing said audio signal,

said repair signal generating means generates the repair signal by the waveform with the greatest similarity in the step of generating said repair signal, and

25 said signal connecting means smoothly connects

said inserted repair signal and the audio signal before and after said deleted segment in the step of connecting said audio signal.

14. An audio signal processing apparatus as set forth
5 in claim 13, wherein

the apparatus further comprises a means for measuring and successively adding a time discrepancy between a segment with the waveform connected by using said repair signal and a segment with said anomalous signal
10 deleted therefrom and

said deducing means, repair signal generating means, and signal connecting means perform the processing again when a sum of the time discrepancy exceeds a constant time discrepancy and the signal of the anomalous segment is
15 insufficient.

15. An audio signal processing apparatus as set forth in claim 13, wherein said deducing means calculates a correlation function for the audio signal before and after said deleted segment and evaluates said similarity by
20 referring to the calculated correlation function.

16. An audio signal processing apparatus as set forth in claim 13, wherein said repair signal generating means calculates a correlation function for the audio signal before and after said deleted segment and cross fades the
25 audio signal.

17. An audio signal processing apparatus as set forth in claim 13, wherein the repair signal generating means cross fades the audio signal before and after said deleted segment to smoothly connect it.

5 18. An audio signal processing apparatus as set forth in claim 2, wherein said anomalous state detecting means detects said anomalous state by detecting skip scanning of a reading means when reading an audio signal from a recording medium.

10 19. An audio signal processing apparatus as set forth in claim 18, wherein

said recording medium comprises a magnetic tape,
said reading means comprises a rotary head for
helically scanning said magnetic tape, and

15 said anomalous state is judged by detecting a time of high speed reproduction of said rotary head and/or a time of switching of said rotary head.

20 20. An audio signal processing apparatus as set forth in claim 18, wherein

said recording medium comprises a randomly
accessable rotary recording medium,

said reading means comprises a head able to
randomly access said rotary recording medium, and

25 said anomalous state is judged by detecting a time of skip operation of said head.

21. An audio signal processing apparatus as set forth
in claim 21, wherein said anomalous state detecting means
detects said anomalous state by statistically processing
said audio signal and detecting a sudden fluctuation in
5 said audio signal.

22. An audio signal processing apparatus comprising:
a deleting means for deleting an audio signal of
a noise segment of noise and discontinuity due to shot
noise superposed on the audio signal or a signal skip;
10 an evaluating means for evaluating a similarity
of the signal waveform before and after the noise segment;
and

a connecting means for smoothly connecting the
waveform to give a maximum similarity.
23. A HiFi video apparatus magnetically recording and
15 reproducing a video signal and an audio signal by a rotary
video head and a rotary audio head, comprising:

a detecting means for detecting a track skip at
the time of high speed reproduction;
20 a deleting means for deleting discontinuity or
noise occurring in a HiFi audio signal caused by a track
skip when a track skip is detected;
an audio signal generating means for generating
an audio signal corresponding to said correct audio signal;
25 and

a signal connecting means for inserting said generated audio signal for said correct audio signal and smoothly connecting said inserted audio signal and the audio signal before and after the deleted segment.

5 24. A digital video apparatus digitally recording and reproducing a video signal and an audio signal by a rotary video head and a rotary audio head, comprising:

a detecting means for detecting a track skip at the time of high speed reproduction;

10 a deleting means for deleting discontinuity or noise occurring in a digital video signal caused by a track skip when a track skip is detected;

an audio signal generating means for generating an audio signal corresponding to a correct audio signal;

15 and

a signal connecting means for inserting said generated audio signal for said correct audio signal and smoothly connecting said inserted audio signal and the audio signal before and after the deleted segment.

20 25. An 8 mm video apparatus magnetically recording and reproducing a video signal and an audio signal by a rotary video head and a rotary audio head, comprising:

a detecting means for detecting a track skip at the time of high speed reproduction;

25 a deleting means for deleting discontinuity or

noise occurring in an 8 mm video audio signal caused by a track skip when a track skip is detected;

an audio signal generating means for generating an audio signal corresponding to a correct audio signal;

5 and

a signal connecting means for inserting said generated audio signal for said correct audio signal and smoothly connecting said inserted audio signal and the audio signal before and after the deleted segment.